Verizon Telematics

GA Tech Open House
Convergence Innovation Competition (CIC)

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February 10, 2015
Atlanta
Outline

- Who is Verizon Telematics?
- Data Analytics and the Connected Car
- Telematics for Transportation Solutions
- CIC Project Ideas
- Q &A
Who is Verizon Telematics?
We Are Verizon

Verizon is one of the largest communication technology companies in the world. We operate America’s largest 4G LTE wireless network and the nation’s premiere all-fiber broadband network.

<table>
<thead>
<tr>
<th>Stock Symbol</th>
<th>VZ (NYSE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Employees</td>
<td>177,300</td>
</tr>
<tr>
<td>Number of Countries</td>
<td>150</td>
</tr>
<tr>
<td>Number of Cities</td>
<td>2,700</td>
</tr>
<tr>
<td>Fortune Rank</td>
<td>16</td>
</tr>
<tr>
<td>Wireless Retail Connections</td>
<td>108.2 million</td>
</tr>
<tr>
<td>FiOS Video Subscribers</td>
<td>5.6 million</td>
</tr>
<tr>
<td>FiOS Internet Subscribers</td>
<td>6.6 million</td>
</tr>
<tr>
<td>Global Network</td>
<td>800,000 route miles</td>
</tr>
<tr>
<td>Data Centers</td>
<td>More than 200</td>
</tr>
<tr>
<td>Retail Sites</td>
<td>1700+</td>
</tr>
</tbody>
</table>
Verizon Telematics

New Name. Leading Edge Solutions.
Verizon Telematics.

Verizon Telematics Offers The Right Solutions

With intuitive and easy-to-use services, Verizon Telematics connects you to what you need, whether it's a coffee shop in Chicago, an ambulance in the middle of nowhere, or the latest email in your inbox. By offering a comprehensive suite of services to consumers, OEMs and dealers, we are able to tailor our offerings to the distinctive needs of our partners and personalize the connected experience for customers. Learn More

https://www.verizontelematics.com/
“White Label” for Mercedes-Benz mbrace
Verizon Telematics - Milestones

- 2006: Company Founded
- 2007: Networkfleet Acquisition
- 2008: MBUSA Contract
- 2009: Daimler Test Calls
- 2010: iPhone v1.0 Launch
- 2011: State Farm Large Scale Pilot
- 2012: Verizon Telematics Acquisition
- 2013: MBUSA Gen2 Launch
- 2014: State Farm National Rollout Complete

Networkfleet Acquisition
MBUSA Contract
Daimler Test Calls
iPhone v1.0 Launch
State Farm Large Scale Pilot
Verizon Telematics Acquisition
MBUSA Gen2 Launch
State Farm National Rollout Complete
Global Implementation

Current locations
- North America
- Asia – China
- Europe

Future potential locations
- Asia – Non-China
- South America
- Middle East
Data Analytics and the Connected Car
## Our History of Service Creation Assures a Future of Innovation For Our Customers

<table>
<thead>
<tr>
<th>Year</th>
<th>2008</th>
<th>2012</th>
<th>TODAY</th>
</tr>
</thead>
<tbody>
<tr>
<td># of Services</td>
<td>17</td>
<td>40+</td>
<td>60+</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Services Offered</th>
<th>Safety &amp; Security</th>
<th>Crash Notification</th>
<th>Vehicle Health (Email / Mobile App)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Convenience</td>
<td>Alarm Notification</td>
<td>Valet Protection (Mobile App) Apps</td>
</tr>
<tr>
<td></td>
<td>Navigation</td>
<td>Stolen Vehicle Locate</td>
<td>In-Vehicle Marketing</td>
</tr>
<tr>
<td></td>
<td>Diagnostics</td>
<td>Speech Recognition</td>
<td>Remote Start</td>
</tr>
<tr>
<td></td>
<td>Infotainment</td>
<td>Mobile App</td>
<td>Trip Statistics</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Concierge</td>
<td>Local Search</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Traffic</td>
<td>Predictive Diagnostics</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Weather</td>
<td>Internet Radio</td>
</tr>
<tr>
<td></td>
<td></td>
<td>POI Download</td>
<td>Remote Update</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Roadside Assist</td>
<td>Climate Control</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Toolbar</td>
<td>Data Plans</td>
</tr>
<tr>
<td></td>
<td></td>
<td>S.O.S. Call</td>
<td>EV Battery Management</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Maintenance Reminder</td>
<td>UBI Insurance Savings</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lock/Unlock</td>
<td>Geo-Fencing</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Safe Ride</td>
<td>Laptop Connect</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Agent Route Assist</td>
<td>Emissions Check</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Friend Finder</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Crisis Assist</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dealer Connect</td>
<td></td>
</tr>
</tbody>
</table>
Data Analytics

1. Data Sources
   - OEM vehicle/customer driving data
   - Verizon Customer/M2M Insights
   - Other data sources (e.g. POI)

2. Cloud-based Big Data Analytics Framework
   - Business Intelligence and Analytics services
   - Large scale data discovery and BI Platform
   - Big Data Infrastructure

3. Big Data Applications

VTI Offerings to OEMs
- Business Intelligence Reporting
  - Vehicle Health Management
  - Safety and Tracking
  - Dashboards on key metrics
- “Discovery For OEMs”
  - Real-time prognostics and diagnostics
  - Customer insights and patterns
  - Anomaly/Adverse event detection and prediction

VTI Offerings to third parties
- Government agencies
- Advertising agencies
- Insurance companies
- Market analytics firms
Machine Learning Example

3 clusters emerged, DTC code drivers were primarily in the “Aggressive Driver” cluster

Non-Aggressive Clusters
Example - Data Analytic Reporting

Government Reports
• Environmental Emissions
• Inspection & Maintenance
• Road Usage Taxes

Traffic Demographics
• Driving Route Patterns
• Volume and Peak Counts
• Accident Reporting
Telematics for Transportation Solutions
What is a Road Usage Charge?

- Funding for road construction and maintenance declining – But demand on our roads is growing
  - Fuel efficient vehicles
  - Electric vehicles
  - Conservation

- Oregon leading in transition from gas tax to road use tax
  - Western Road Use Commission of 11 states; plus observers
  - Create a market for businesses to fill
    - Applying technology to the challenge of measuring mileage

- Technology enables:
  - Accurate mileage and fuel use
  - Data to support funding decisions
  - Ancillary services to offset costs, increase safety, and reduce pollution
Oregon RUC Program

- Verizon provides service to thousands of Oregon vehicles for Usage Based Insurance
Remote Emissions Inspection

- Oregon to implement in Spring 2015 for In-Drive customers
- Two testing options
  - Remote: On-board device (same as for RUC), motorist transmits test record to state
  - Station: Devices available at stations, station transmits test record to state
- Benefits
  - Saves the state money; reduces fraud and enforcement expenses
  - Provides all of the EPA-recommended remote OBD test data
  - Supreme convenience and cost-savings for motorists
  - Significantly reduces the emissions testing process for fleets
  - I/M Program area can be easily expanded
Technology Verizon will use in Oregon

• Easy plug-in to ODB port
• Insurance industry hardened device and network
• Features for customers and states
  – Collects vehicle miles, fuel use
  – Stolen vehicle tracking
  – Automatic Crash Notification
    • Lat & Long
    • Voice connect to E911
  – Geofencing
    • Alerts when your teen goes out of into designated areas
  – Speed monitoring
    • Record of how fast your teen drove
  – Remote Emissions Testing
CIC Project Ideas
CIC Project Ideas

“As a driver of a commercial vehicle, I want to…”

• Improve Driver Safety
  – Incorporate active reminders when I am Texting & Driving
  – Reduce Driver Distraction during my workday
  – Incorporate inclement weather (NOAA) with my driving routes
  – Incorporate my mobile phone to track me outside my vehicle

• Optimize Parking
  – Locate the nearest (legal) parking spot for my vehicle on a delivery
  – Reduce the number of parking tickets due to “double parking” during deliveries
CIC Project Ideas (p. 2)

“As the owner of a small commercial fleet, I want to…”

• Improve Driver Productivity
  – Calculate a Driver Behavior Score to improve my workplace productivity
  – Calculate eco “green” driver score to monitor fuel usage and emissions

• Create actionable Data Analytics
  – Create geospatial models for best fuel efficiency (MPG)
  – Cluster and classify my driver history to reduce operational costs
CIC Project Ideas (p. 3)

“As a citizen of Atlanta, I want to…”

• Smart City and Transportation
  – Improve predictive traffic routing for optimized auto travel
  – Create shared use vehicle scheduling and reservation applications
  – Gather data about energy consumption, water usage, waste disposal, and recycling to manage systems and predict trends

• Connected Car ↔ Connected Home
  – Incorporate NEST home automation devices for energy optimization
  – Incorporate IFTTT recipes and InDrive features for home control
  – Collaborate with GA Tech Aware Home?
CIC Project Ideas (p. 4)

“As a GA Tech student, I want to…”

- Social Network Transportation Solutions
  - Ride share for campus errands (i.e. ride to the grocery store later today)
  - Ride share for Holiday/Break (i.e. Ride Home Town, or Back To Campus)

- Optimize Student Parking
  - Locate the nearest parking spot for my next class
  - Invent a portable parking meter in the IT cloud
  - Automate parking pass reader with OCR storing number to the IT cloud
  - Redirect others to my parking spot when I depart

- Student Safety
  - Create application for “Walk Me Home Safely Tonight” (i.e. group together)
  - Incorporate E911 Hot Button “I Need Help Now” (i.e. alert campus police)
  - Provide a designated driver for special events
Example – Create Geofence
Example - Vehicle Health Status

Vehicle Health

DIAGNOSTICS SUMMARY

Battery:  
OK

Alternator:  
OK

Radiator:  
OK

Emissions:  
OK

Powertrain:  
OK

Mechanical:  
OK

Wiring:  
OK

Electrical:  
OK

VEHICLE HEALTH ALERTS:

SMS: On / Off  Email: On / Off  Please save your alert options.

Save
Example – Driver Dashboard

My Driving

All Time | Last Month | This Month | Last Week | This Week | Today

Jun | Jul | Aug | Sept | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun

Total Distance Driven: 113 mi
*Approx. Cost of Fuel: $22

Average Trip: 13 mi
Combined MPG: 21

Max Speed: 73 mph
City MPG: 20

Average Speed: 13 mph
Highway MPG: 26

*This number is an approximation.
Q & A
Backup Slides
Reference Links

Company
https://www.verizontelematics.com/
http://www.networkfleet.com/
https://www.verizonvehicle.com

Videos
https://www.youtube.com/watch?v=URQO4NswoZA
https://www.youtube.com/watch?v=Qh0Uwnk9x3M

Innovation Competition
http://cic.gatech.edu/
Reference Links (p. 2)

Auto OEM - Mercedes “mBrace”
http://www.mbusa.com/mercedes/mbrace

Auto OEM - Volkswagen “Car-Net”, link to “Learn More About Car-Net”

User Based Insurance (UBI) – State Farm “Drive Safe and Save”
http://www.in-drive.com/sf
http://www.in-drive.com/sf/servicesPackages.html#IL